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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/765,966 | 01/29/2004 | Takehiro Yoshida | 12706/9 | 2351 |

23838 7590 01/12/2006

KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

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| EXAMINER |
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CONSILVIO, MARK J

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| ART UNIT | PAPER NUMBER |
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2872

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,966

Applicant(s)

YOSHIDA, TAKEHIRO

Examiner

Mark Consilvio

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/5/2005 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 7/1, 7/3/1, and 7/4/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knebel (US Patent Application Publication No. 2002/0021440) in view of Middlestadt (US Patent No. 2,964,998).

With respect to claim 1, Knebel discloses spectroscope that resolves a light beam (1) into separated light beams having various wavelengths, and selects and extracts a separated light beam having an arbitrary wavelength from among these separated light beams, comprising: a first mask (3) disposed such that a transmission area (4) of each of the separated light beams in a spectrum direction is limited; where said spectrum direction denotes a direction of the arrangement of these separated light beams when viewed against the line of the resolved separated light beams, wherein: said first mask (3) includes a pair of first mask members which are movable closer to or further away from each other so as to adjust a first length of said transmission area (4) in said spectrum direction (fig. 1). Knebel is silent to a second mask disposed such that the transmission area of each of the separated light beams in a direction perpendicular to said spectrum direction is limited. Middlestadt discloses an adjustable aperture apparatus for use with spectroscopes including first and second masks disposed perpendicular to each other and said second mask includes a pair of second mask members (38) which are movable closer to or further away from each other so as to adjust a second length of said transmission area in a direction perpendicular to direction of adjustment of the first mask (fig. 6). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Knebel and Middlestadt to provide a second mask disposed such that the transmission area of each of the separated light beams in a direction perpendicular to said spectrum direction is limited, and said second mask includes a pair of second mask members which are movable closer to or further away from each other so as to adjust a second length of said transmission area in said direction perpendicular to said spectrum direction. One of ordinary skill in the art would have been motivated to do this "to provide precision two-

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dimensional control and additionally provide a light-tight and dust-proof enclosure” (Middlestadt col. 1, lines 35-38). Further, such an arrangement would increase the signal-to-noise ratio allowing for greater spectral resolution.

With respect to claim 3, the combination of Knebel and Middlestadt discloses an adjustment device that adjusts the relative positions of each of said first and second masks and each of the separated light beams that propagates towards these first and second masks since Knebel teaches such an adjustment device that adjust the relative position of the beam and its mask (See Knebel p. 2, pars. 17-19).

With respect to claim 4, the combination of Knebel and Middlestadt does not expressly disclose a reflection preventing means provided on a shielding surface on one or both of said first and second masks on which said separated light beams are impinged. However, the examiner takes Official Notice that anti-reflection coatings are old and well known in the art. They are commonly placed on optical components to reduce flaring or ghosting in optical systems and would be especially useful in a sensitive detection system such as a spectroscope. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the teachings of Knebel and Middlestadt to provide such a reflection preventing means on the shielding surface to reduce such noise in the optical system.

With respect to claims 7/1, 7/3/1, and 7/4/1, Knebel discloses a confocal scanning microscope that resolves a light beam from an observation object (14) into separated light beams of various wavelengths, selects a separated light beam having an arbitrary wavelength from among these separated light beams, and receives the selected separated light beam at a

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photodetector (20), comprising: the spectroscope being provided between the light paths from said observation object towards said photodetector (20) (fig. 1).

Claims 2, 6, 7/2/1, and 7/6/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knebel (US Patent Application Publication No. 2002/0021440) in view of Middlestadt (US Patent No. 2,964,998) and in further view of Engelhardt et al. (PCT Publication No. WO99/39165) (herein Engelhardt '165).

With respect to claims 2 and 7/2/1, the combination of Knebel and Middlestadt discloses or suggests all the limitations of claims 1 and 7 as stated *supra*. Knebel discloses a small pinhole aperture (16) that focuses said light beam before resolution. While Knebel and Middlestadt do not expressly disclose that the aperture can square, Engelhardt '165 teaches the use of such a square aperture (8) in a confocal arrangement where a direction of one of diagonals of said small aperture is parallel to said spectrum direction (fig. 2). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Knebel and Middlestadt to provide a square-shaped aperture to create the desired spectrum pattern allowing only focused light from the optical system to be detected by being able to effectively remove higher orders of the diffraction pattern (See Engelhardt '165 col. 3, lines 50-64).

With respect to claims 6 and 7/6/1, the combination of Knebel and Middlestadt discloses or suggests all the limitations of claims 1 and 7 as stated *supra*. While Knebel and Middlestadt do not expressly disclose that the aperture can square, Engelhardt '165 teaches lenses disposed in

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opposition are adjacent to said first and second masks; and surfaces of said lenses that are adjacent to said masks have a convex shape that is convex towards these masks.

Claims 5 and 7/5/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knebel (US Patent Application Publication No. 2002/0021440) in view of Middlestadt (US Patent No. 2,964,998) and in further view of Engelhardt (US Patent Application Publication No. 2003/0095329) (herein Engelhardt '329).

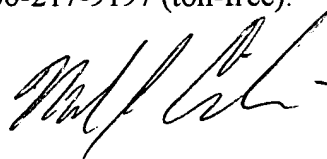
With respect to claims 5 and 7/5/1, the combination of Knebel and Middlestadt discloses or suggests all the limitations of claims 1 and 7 as stated *supra*. The combination does not expressly disclose a shielding surface on one or both of said masks that is impinged by said separated light beams is slanted so as to avoid facing an optical device adjacent to said shielding surface. However, Engelhardt '329 teaches a shielding surface on one or both of said first and second masks (53, 55) that are impinged by said separated light beams (111, 113) is slanted so as to avoid facing an optical device adjacent to said shielding surface (fig. 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the teachings of Knebel and Middlestadt to provide a shielding surface on one or both of said masks that is impinged by said separated light beams is slanted so as to avoid facing an optical device adjacent to said shielding surface. One of ordinary skill in the art would have been motivated to do this to eliminate the creation of flare (see Engelhardt '329 p. 2, par. 35).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Consilvio whose telephone number is (571) 272-2453. The examiner can normally be reached on Monday thru Friday, 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mark Consilvio
USPTO Patent Examiner
Jefferson, 3C21 AU-2872
(571) 272-2453



DREW A. DUNN
SUPERVISORY PATENT EXAMINER